



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,714	05/25/2006	Tadaaki Harada	062568	5487
38834	7590	08/19/2008		
WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP			EXAMINER	
1250 CONNECTICUT AVENUE, NW			HON, SOW FUN	
SUITE 700			ART UNIT	PAPER NUMBER
WASHINGTON, DC 20036			1794	
			MAIL DATE	DELIVERY MODE
			08/19/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/580,714	HARADA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	SOPHIE HON	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 01 May 2008.

2a) This action is **FINAL**.                    2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-16 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-16 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

- Certified copies of the priority documents have been received.
- Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
- Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.

5) Notice of Informal Patent Application

6) Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Amendment***

#### ***Withdrawn Rejections***

1. The obviousness-type double patenting and 35 U.S.C. 103(a) rejections over Akada in the Office action dated 12/11/07 are withdrawn due to Applicant's amendment dated 05/01/08.
2. The 35 U.S.C. 102(e) and 35 U.S.C. 103(a) rejections over Shibahara as the primary reference in the Office action dated 12/11/07 are withdrawn due to Applicant's amendment dated 05/01/08.

#### ***New Rejections***

#### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-8, 10-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibahara (US 7,132,154) in view of Border (US 2002/0123550 A1).

Regarding claims 1-2, 4-5, 7, 15-16, Shibahara teaches a resin sheet (plastic sheet substrate, column 10, lines 12-13), characterized in that it comprises a cured epoxy resin layer containing in an epoxy resin ((a), column 7, lines 55-60) a glass fiber cloth-like material (glass filler (b), glass cloths most preferred, column 9, lines 1-8) and inorganic particles (composite composition may further contain another inorganic filler, column 6, lines 43-47, which are particles added to a matrix to improve its properties).

Shibahara teaches that the refractive index difference between the epoxy resin that forms the cured resin layer and the glass fiber cloth-like material is more preferably not more than 0.005 (column 3, lines 20-25), which is within the claimed range of 0.01 or less. Shibahara teaches that the light transmittance of the resin sheet is 88% or more when measured at 550 nm (columns 13-14, lines 50-60), which is within the claimed range of 88% or more. Shibahara teaches that the resin sheet has excellent transparency (column 2, lines 10-15) wherein the inorganic filler particles do not impair transparency (column 9, lines 45-47), but fails to disclose the dimensions of the inorganic particles, and thus fails to teach a mean particle diameter within the range of 100 nm or smaller, or 70 nm or smaller.

However, Border teaches that an inorganic filler silica ([0006]) which is an inorganic oxide, with a mean particle diameter of 40 nm ([0035]), which is within the claimed range of 100 nm or smaller, is used for the purpose of avoiding the scattering of light and hence maintain the desired level of transparency ([0035]).

Therefore, since Shibahara is silent regarding the dimensions of the inorganic particles, it would have been necessary and hence obvious to have looked to the prior art for suitable ones. As such, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided silica inorganic oxide particles with a mean particle diameter within the range of 100 nm or smaller, or 70 nm or smaller, as the inorganic particles in the resin sheet with excellent transparency of Shibahara, in order to avoid scattering of light and hence maintain the desired level of transparency, as taught by Border.

Thus, although Shibahara, as modified by Border, fails to disclose that the resin sheet is structured to have a haze value of 10% or lower, where the claimed and prior art products are identical or substantially identical in structure and composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established, and the claimed properties are presumed to be inherent. See MPEP 2112.01. If there were to be any differences in structure or chemistry, these differences are presumed to be minor and obvious in the absence evidence to the contrary. In the instant case, Shibahara, as modified by Border, teaches the presently claimed composition, as described above. Shibahara teaches that the resin sheet has improved smoothness (column 10, lines 12-15) and excellent transparency (column 2, lines 10-15) wherein the transparency is not impaired by the components of the resin sheet (column 9, lines 45-48). Furthermore, Shibahara teaches that the diffused refraction of light passing through the resin is undesirable (column 1, lines 55-58) which means that haze is undesirable.

Regarding claim 3, Shibahara teaches that the glass fiber cloth-like material is a most preferred form of the glass filler (b), of which glass particles can also be a part of (glass beads, glass flakes, glass powders, column 9, lines 1-8), wherein the glass filler (b) as a whole is incorporated more preferably in an amount of 30 to 70% by weight, for the purpose of reducing the linear expansion coefficient of the resin sheet (composite formulation, column 9, lines 15-20), and that the resin layer can further comprise another inorganic filler (column 9, lines 43-49). Silica particles are a species of glass particles. Thus, although Shibahara fails to specify that the silica glass particles are

present in an amount of 15 to 60 weight %, in the absence of a demonstration of criticality, it would have been obvious to one of ordinary skill in the art, to have added silica particles in an amount within the claimed range of 15 to 60 weight %, to the resin layer, in addition to the glass fiber cloth-like material, to fill in the portions of the resin layer that is not occupied by the glass fiber cloth-like material, for the purpose of further reducing the linear expansion coefficient of the resin sheet.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided inorganic silica glass particles, in an amount that is within the range of 15 to 60 weight %, in addition to the glass fiber cloth-like material, in the resin sheet of Shibahara, in order to increase the reduction of the linear expansion coefficient of the resin sheet taught by Shibahara.

Regarding claim 6, Shibahara teaches that the coefficient of linear expansion is equal to or less than  $2.0 \times 10^{-5}$  at 30 to 150 °C (most preferably not more than 20 ppm, column 10, lines 1-6), which is within the claimed range of equal to or less than  $5.0 \times 10^{-5}$  at 25 to 160 °C.

Regarding claim 8, Shibahara teaches that a gas barrier layer is further laminated on the resin sheet (column 10, lines 20-22).

Regarding claims 10-11, Shibahara teaches a liquid crystal display device characterized in that it inherently comprises as a liquid crystal cell substrate (liquid crystal display device substrate, in particular of the active matrix type, column 15, lines 30-32) the resin sheet described above (transparent composite composition, column 15, lines 25-30).

Regarding claims 12-13, Shibahara teaches an electroluminescence display device, characterized in that it comprises a substrate (organic EL device substrates, column 15, lines 30-31) characterized in that it comprises the resin sheet described above (transparent composite composition, column 15, lines 25-30).

Regarding claim 14, Shibahara teaches a substrate for a solar cell that comprises the resin sheet described above (solar cell substrates, column 15, lines 25-35).

4. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shibahara in view of Border as applied to claims 1-8, 10-16 above, and further in view of Babb (US 5,730,922).

Shibahara, as modified by Border, teaches the resin sheet, characterized in that it comprises a cured resin layer containing in a resin a glass fiber cloth-like material and inorganic particles, and is structured to have a haze value within the range of 10% or lower, as discussed above. Shibahara fails to teach that the resin sheet is further laminated with a hard-coat layer.

However, Babbs teaches a resin sheet (laminated of layers, column 2, line 18) comprising a layer comprising glass fiber cloth-like material (woven glass fiber, column 2, line 40) and an epoxy resin (column 2, lines 44-45). Babbs teaches that the resin sheet is further laminated with a layer for providing the surface of the resin sheet with scratch resistance (column 2, line 32), which is a hard-coat layer that can resist scratching.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have further laminated a hard-coat layer on the resin sheet of Shibahara, in order to provide the desired surface protection such as scratch resistance, as taught by Babbs.

***Response to Arguments***

5. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number is (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks, can be reached on (571)272-1401. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*/Sophie Hon/*

Sow-Fun Hon

*/KEITH D. HENDRICKS/  
Supervisory Patent Examiner, Art Unit 1794*